Claims

1. Implant of genetically modified cells comprising an exogenous nucleotide sequence encoding all or part of an antibody, the said exogenous nucleotide sequence being placed under the control of the elements necessary for its expression and for the secretion of the said antibody.

2. Implant according to Claim 1, characterized in that the said antibody is selected from the group consisting of:

- a native antibody,
- a chimeric antibody,
- an antibody fragment, especially a fragment Fab, $F(ab')_2$, Fc or scFv, and
- a bispecific antibody.

3. Implant according to Claim 1 or 2, characterized in that the said antibody is modified by a toxic or immunopotentiating substance.

4. Implant according to Claim 3, characterized in that the said antibody may be modified by a toxic substance selected from a ribonuclease, and especially the ribonuclease from *Bacillus amyloliquefaciens*, ricin, diphtheria toxin, cholera toxin, herpes simplex virus thymidine kinase, cytosine deaminase from *Escherichia coli* or from a yeast of the genus *Saccharomyces*, exotoxin from *Pseudomonas* and human angiogenin or an analog of the said substances.

5. Implant according to one of Claims 1 to 4, characterized in that the cells are genetically modified by transfection of a vector derived from a plasmid, from a retrovirus or from a herpes virus, from an adenovirus, from an adenovirus-associated virus comprising the said exogenous nucleotide sequence placed under the control of the elements necessary for its expression and for the secretion of the said antibody.

6. Implant according to Claim 5, characterized in that the said vector is dicistronic.

7. Implant according to Claim 6, characterized in

that the said vector is retroviral and comprises from 5' to 3':

(a) a 5' LTR derived from a retrovirus,

(b) an encapsidation region,

(c) an exogenous nucleotide sequence comprising:

- an internal promoter,
- a first sequence encoding the heavy chain of an antibody,
- a ribosome entry initiation site,
- a second sequence encoding the light chain of an antibody, and

(d) a 3' LTR derived from a retrovirus.

8. Implant according to Claim 7, characterized in that the said exogenous nucleotide sequence comprises, in addition, a third sequence encoding a toxic or immunopotentiating substance fused downstream and operably to the second sequence.

9. Implant according to one of Claims 1 to 8, comprising genetically modified autologous cells.

10. Implant according to Claim 9, comprising genetically modified fibroblasts.

11. Implant according to one of Claims 1 to 10, characterized in that it comprises from 10^6 to 10^{12}, preferably from 10^7 to 10^{11} genetically modified cells.

12. Method for the preparation of an implant according to one of Claims 1 to 11, characterized in that the genetically modified cells and an extracellular matrix are placed in contact.

13. Use of an implant according to one of Claims 1 to 11, for the preparation of a pharmaceutical composition intended for the treatment or for the prevention of an acquired disease.

14. Use of an implant according to Claim 13, for the preparation of a pharmaceutical composition intended for the treatment or for the prevention of an infectious disease, and especially AIDS, or cancer.

15. Recombinant adenoviral vector comprising an exogenous nucleotide sequence encoding all or part of one or more protein(s) of interest capable of forming a

multimer in a host cell; the said exogenous nucleotide sequence being placed under the control of the elements necessary for its expression.

16. Recombinant adenoviral vector according to Claim 15, comprising an exogenous nucleotide sequence encoding all or part of one or more protein(s) of interest capable of forming a dimer in the said host cell.

17. Recombinant adenoviral vector according to Claim 15, comprising an exogenous nucleotide sequence encoding all or part of one or more protein(s) of interest capable of forming a tetramer in the said host cell.

18. Recombinant adenoviral vector comprising an exogenous nucleotide sequence encoding all or part of an antibody; the said exogenous nucleotide sequence being placed under the control of the elements necessary for its expression.

19. Recombinant adenoviral vector according to Claim 18, characterized in that the said antibody is selected from the group consisting of a native antibody, a chimeric antibody, an antibody fragment and especially a fragment $F(ab')_2$, Fc or scFv and a bispecific antibody.

20. Recombinant adenoviral vector according to Claim 18 or 19, characterized in that the said antibody is modified by a toxic or immunopotentiating substance.

21. Recombinant adenoviral vector according to Claim 20, characterized in that the said antibody may be modified by a toxic substance selected from a ribonuclease, and especially the ribonuclease from *Bacillus amyloliquefaciens*, ricin, diphtheria toxin, cholera toxin, herpes simplex virus thymidine kinase, cytosine deaminase from *Escherichia coli* or from a yeast of the genus *Saccharomyces*, exotoxin from *Pseudomonas* and human angiogenin or an analog of the said substances.

22. Recombinant adenoviral vector according to Claim 20, characterized in that the said antibody is modified by an immunopotentiating substance.

23. Recombinant adenoviral vector according to one of Claims 15 to 22, derived from an adenovirus of human, canine, avian, bovine, murine, ovine, porcine or simian

origin or from a hybrid comprising adenoviral genome fragments of different origins.

24. Recombinant adenoviral vector according to one of Claims 15 to 23, characterized in that it is defective for replication.

25. Recombinant adenoviral vector according to Claim 24, characterized in that it at least lacks all or part of the E1 region and, optionally, all or part of the E3 region.

26. Recombinant adenoviral vector according to Claim 24 or 25, comprising an exogenous nucleotide sequence encoding the heavy chain of the 2F5 antibody, an IRES element and the light chain of the 2F5 antibody; the said exogenous nucleotide sequence being placed under the control of the elements necessary for its expression.

27. Recombinant adenoviral vector according to Claim 24 or 25, comprising an exogenous nucleotide sequence encoding the signal sequence and the extracellular I and II domains of the CD4 protein operably fused to the constant γ3 region (hinge region-CH2 and CH3) of the heavy chain of the 2F5 antibody.

28. Recombinant adenoviral vector according to Claim 24 or 25, comprising an exogenous nucleotide sequence encoding the signal sequence and the extracellular I and II domains of the CD4 protein operably fused to the constant γ3 region (hinge region-CH2 and CH3) of the heavy chain of the 2F5 antibody and operably fused to the mature human angiogenin.

29. Recombinant adenoviral vector according to one of Claims 15 to 28, characterized in that the elements necessary for the expression comprise a promoter selected from the group consisting of the adenoviral early promoter E1A, the late promoter MLP (Major Late Promoter), the murine or human PGK (Phosphoglycerate kinase) promoter, the SV40 virus early promoter, the RSV (Rous Sarcoma virus) virus promoter, a promoter which is specifically active in tumor cells and finally a promoter which is specifically active in the infected cells.

30. Infectious viral particle comprising a recombi-

nant adenoviral vector according to one of Claims 15 to 29.

31. Eukaryotic host cell comprising a recombinant adenoviral vector according to one of Claims 15 to 29 or an infectious viral particle according to Claim 30.

32. Pharmaceutical composition comprising a recombinant adenoviral vector according to one of Claims 15 to 29, an infectious viral particle according to Claim 30 or a eukaryotic host cell according to Claim 31, in association with a pharmaceutically acceptable carrier.

33. Pharmaceutical composition according to Claim 32, comprising 10^4 to 10^{14} pfu.

34. Pharmaceutical composition according to Claim 32 or 33, characterized in that it is in injectable form.

35. Use of a recombinant adenoviral vector according to one of Claims 15 to 29, of an infectious viral particle according to Claim 30 or of a eukaryotic host cell according to Claim 31 for the preparation of a pharmaceutical composition intended for the treatment and/or prevention of the human or animal body by gene therapy.

36. Use according to Claim 35, for the preparation of a pharmaceutical composition intended for the treatment and/or prevention of acquired diseases and especially cancers and AIDS.

37. Use according to Claim 36, for the preparation of a pharmaceutical composition administrable via the intravenous or intratumor route.